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Final devoicing and vowel lengthening in the north of Italy

A representational approach

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Plan of talk

- ▶ General context: vowel length in Northern Italy
- ▶ Incomplete neutralization in Friulian final devoicing
- ▶ Analysis of Friulian
- ▶ Extension to Lombard
- ▶ Conclusion



Vowel length in Northern Italy Overview

Setting the scene

- ▶ Romance varieties in Northern Italy: generally Gallo-Romance
- ▶ Distinctive vowel length

(1) Casale Corte Cerro (Western Lombard; Weber Wetzel 2002)

- | | | | |
|----|------|-----------|---------------|
| a. | (i) | [fa:l] | ‘do it’ |
| | (ii) | [fal] | ‘mistake’ |
| | (i) | [pu'lit] | ‘turkeys’ |
| | (ii) | [pu'li:t] | ‘well (adv.)’ |

- ▶ For a general overview, see Repetti (1992)



Vowel length in Northern Italy Overview

Two types of long vowels I

- ▶ Lexically long vowels, often going back to compensatory lengthening due to cluster simplification

(2) Friulian

- | | | |
|----|----------|----------------|
| a. | ['ne:re] | ‘black (fem.)’ |
| b. | ['vo:li] | ‘eye’ |

- ▶ Many cases collected by Videsott (2001)
- ▶ Or the origin may be in the bimoraic norm (Repetti 1992)



Two types of long vowels II

- Productive lengthening in (certain) oxytones

(3) Milanese (Prieto i Vives 2000; Sanga 1988)

a. [fø:g]/[fø:k] 'fire'

- Diachronical disagreement: see Loporcaro (2007) for ample references
- I tend to agree with Loporcaro (2007) that both types of lengthening have a single source, but this is irrelevant here: synchronic account only



Friulian

- Concentrating on Friulian here, specifically Central Friulian
- Many descriptions: Francescato (1966); Vanelli (1979); Baroni & Vanelli (2000); Miotti (2002); Finco (2007, 2009), to name but a few
- Has the second type of long vowels, and some varieties have the first one too
- Basic idea:
 - There is no neutralization in final devoicing, only delaryngealization of voiced obstruents
 - Delaryngealized obstruents fail to project a mora, so the bimoraic foot has to be built over the vowel
 - Similar to how Prieto i Vives (2000) analyzes Milanese, except I also account for the laryngeal phonology



Consonant inventory

Manner	Labial		Dental		Alveolar		Postalveolar		Palatal		Velar	
Stop	p	b	t	d					c	ɟ	k	g
Fricative	f	v			s	z	ʃ	(ʒ)				
Nasal		m				n				ɲ		ŋ
Affricate			ts	dz			tʃ	dʒ				
Approximant		w								j		
Rhotic						r						
Lateral						l						

- Like any old Romance inventory, except the contrast between postalveolar affricates and palatal stops



Vowel inventory

Height	Front		Central		Back	
	Short	Long	Short	Long	Short	Long
High	i	i:			u	u:
Mid-high	e	e:			o	o:
Mid-low	ɛ	ɛ:			ɔ	ɔ:
Low			a	a:		

- The mid low vowels ([ɛ ɔ]) are rare, and disallowed in unstressed syllables
- Again, any old Romance inventory plus vowel length
- Actually, the long vowels are fairly diphthongized (Miotti 2002) and are in fact diphthongs in many dialects (Francescato 1966)



Vowel lengthening I

- These data are from Baroni & Vanelli (2000); Finco (2007) is in broad agreement
- Unstressed vowels are short; stressed vowels are normally short:

- | | | | |
|-----|----|------------|---------------|
| (4) | a. | [a'mi] | 'friend |
| | b. | ['mɛt] | '(s)he puts' |
| | c. | [can'tade] | 'sung (fem.)' |
| | d. | ['gust] | 'taste' |
| | e. | ['man] | 'hand' |
| | f. | ['bratʃ] | 'arm' |



Vowel lengthening II

- Stressed vowels can be long:

- | | | | | |
|-----|----|-----------|------------------|-----|
| (5) | a. | [vi:f] | 'alive' (masc.)' | _C# |
| | b. | ['spɔ:rk] | 'dirty (masc.)' | _r |
| | c. | ['ne:ri] | 'black' | |

- Minimal pairs: final syllables before single consonants:

- | | | | | |
|-----|----|------|---------|-----------------|
| (6) | a. | (i) | ['la:t] | 'gone (masc.)' |
| | | (ii) | ['va:l] | '(it is) worth' |
| | b. | (i) | ['lat] | 'milk' |
| | | (ii) | ['val] | 'valley' |

- Generalization: the vowel before an obstruent is lengthened if the obstruent is underlyingly voiced

- | | | | |
|-----|----|---------|-----------------|
| (7) | a. | ['lade] | 'gone (fem.)' |
| | b. | [la'ta] | 'to breastfeed' |



The theoretical challenge

- A number of simple solutions are available in a rule-based theory, all relying on relinking a delinked mora
- Hualde (1990): voiced consonants are moraic (unclear whether underlyingly or via weight-by-position), final devoicing sets the mora afloat, lengthening is due to relinking
- Repetti (1992): Late Latin vowels are present underlyingly, apocope creates a floating mora, a final stressed vowel captures it
- Classic type of counterbleeding opacity with overapplication of vowel lengthening
- Theoretical goal:
 - Provide a parallel OT account
 - Solve representational issues



Missing pieces I

- The missing piece in the puzzle is the actual laryngeal neutralization of laryngeal contrast
- Baroni & Vanelli (2000) show quite conclusively that devoiced obstruents (though they only looked at stops) are phonetically different from true voiceless obstruents
 - Acoustic data do not show voicing
 - Acoustic data show weaker bursts w. r. t. true voiceless stops
 - Statistically significant difference in vowel length w. r. t. word-internal stops
 - Significant difference in vowel quality. Generally gradient and very variable, but before voiceless stops the vowel inventory is best described as [a ɔ ε ʊ ɪ], and before devoiced stops it is rather [a o e u i]
 - Significant difference in placement of F0 peak on the vowel: before devoiced stops, a HL tone; before voiceless stops, a relatively late H peak
 - Devoiced stops significantly shorter than voiceless ones, about the same duration as word-medial voiced stops



Missing pieces II

- ▶ Vowels before word-medial voiced stops are also lengthened, though by much less than before devoiced word-final stops: “half-long”
- ▶ The length facts are broadly confirmed by Finco (2007)

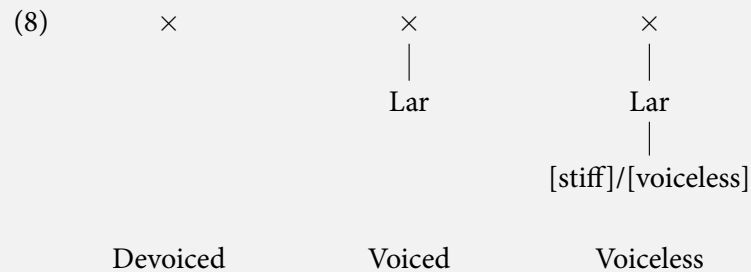


The pattern

- ▶ The final phonetically voiceless obstruents are not the same as lexical voiceless obstruents
- ▶ Phonetically: [ˈlat] vs. [ˈlaːd̥]
- ▶ Phonologically: I propose that final obstruents are delaryngealized (Mascaró 1987) in the output of phonology
- ▶ Voiceless stops are laryngeally specified, and this extra structure allows them to project a mora
- ▶ Ternary contrast formalized via feature geometry, for reasons to be explained below



Representational assumptions



- ▶ Broadly familiar (Mascaró 1987; Lombardi 1995; Avery 1996; Steriade 1997)
- ▶ But voiceless has most structure



Analysis

- ▶ Head foot must be bimoraic
- ▶ Weight-by-Position for laryngeally specified coda segments: WbP is an augmentation constraint
 - ☞ Laryngeally unspecified segments are not moraic by TETU
- ☞ [F] in Friulian is [voiceless]:
 - ▶ Markedness = structure.
 - ▶ De Lacy (2006): whatever is preserved is more marked, neutralization is to less marked
- ▶ Final devoicing: deletion of [Lar] but preservation of [vcl]



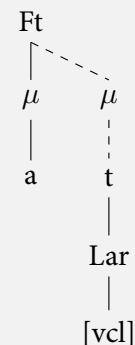
OT preliminaries

- ▶ MAIN-TO-WEIGHT (Bye & de Lacy 2008): stressed syllables are bimoraic
- ▶ Constraints on weight, partly following Morén (2001)
 - ▶ $*\mu([\text{seg}])$: (certain segment types) cannot be moraic
 - ▶ MAX- μ : do not delete morae
 - ▶ DEP- μ : do not insert morae
 - ▶ MAXLINK- $\mu([\text{seg}])$: do not delete moraic associations (for certain segment types)
 - ▶ DEPLINK- $\mu([\text{seg}])$: do not insert moraic associations (for certain segment types)
- ▶ I propose: WEIGHT BY POSITION[Lar]: coda segments with a Lar node should be moraic
 - ▶ Usually WEIGHT BY POSITION is not parametrized, but this is necessary if we want to use it as a licensing constraint
 - ▶ For augmentation constraints in general, cf. Smith (2002)



No lengthening in /at/

- ▶ Final devoicing driven by $*\text{Lar}/_]_{\text{Wd}}$ (whatever...)
- ▶ Obstruent projects a mora
- ▶ Final [vcl] is protected by MAX[vcl]



No lengthening in /at/: OT analysis

(9)

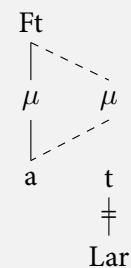
lat	MtW	MAX[vcl]	$*\text{Lar}/_]_{\text{Wd}}$	WBP(Lar)
a. $\text{la}_{\mu}\text{t}_{\mu}$			*	
b. $\text{la}_{\mu\mu}\text{t}$			*	*!
c. $\text{la}_{\mu}\text{d}_{\mu}$		*!		
d. $\text{la}_{\mu\mu}\text{d}$		*!		
e. $\text{la}_{\mu}\text{d}_{\mu}$		*!	*	
f. $\text{la}_{\mu\mu}\text{d}$		*!	*	*

- ▶ Loss of laryngeal contrasts impossible, so WbP decides



Lengthening in /ad/

- ▶ In the case of /ad/, final devoicing must happen
- ▶ Final devoicing creates segments with no Lar node, so WBP(Lar) is inactive, and there is no reason for $V_{\mu}C_{\mu}$, hence lengthening



Lengthening in /ad/: OT analysis

lad	M _T W	*μ[cons]	*Lar/_] _{Wd}	MAX(Lar)	WBP(Lar)
a. la _μ d	*!		*		*
b. la _μ d _μ		*!	*		
c. la: _{μμ} d			*!		*
d. la _μ d _μ		*!		*	
e. la: _{μμ} d _μ				*	

- ▶ There is no constraint that could force a mora to surface on the Lar-less devoiced obstruent
- ▶ The extra structure effectively licenses moraicity; high-ranking *μ[cons] (or *μ[obst]) is necessary anyway to prevent gratuitous mora insertion



Further empirical issues I

- ▶ No lengthening in paroxytones: the head foot is bisyllabic, so no reason to coerce obstruent moraicity, violating *μ
- ▶ Non-obstruents:
 - ▶ Vowel length contrast before [l]: best explained as distinctive weight (Morén 2001): MAX-μ ≫ *μ[lat] ≫ WBP(lat)
 - ▶ Vowels always short before [ŋ]: undominated WBP[nas]
 - ▶ Lengthening of vowels before [r] (if it is phonological): *μ[rhotic]
- ▶ Feature descriptions are shorthands: importantly, they should refer to actual pieces of structure, not to the sonority hierarchy
- ▶ The affricate [dʒ] devoices, but the preceding vowel fails to lengthen:

- (10) a. [vja'dʒa(:)] 'travel'
b. [vjaʈʃ] 'trip' (*[vja:tʃ])



Further empirical issues II

- ▶ Could be a problem if, as often assumed, the affricates are really stops (e.g. Rubach 1994), since this behaviour is thus unexplained
- ▶ Crucially, however, Friulian contrasts the postalveolar affricates with true palatal stops, so [tʃ dʒ] must really be affricates: I assume they have two root nodes at one level or another
- ▶ The behaviour of [dʒ] is thus in line with the behaviour of other clusters in Friulian
- ▶ An even further twist: vowels **can** be lengthened before final [tʃ] from /dʒ/, but only in a **morphological** context

- (11) a. [dis'trudʒi] 'destroy (inf.)'
b. [al dis'tru:tʃ] 'destroys (3 sg.)'



- ▶ The extra mora must be morphological, creating an otherwise banned trimoraic syllable

Further empirical issues III

- ▶ Ask me about:
 - ▶ Richness of the Base
 - ▶ Clusters in general
 - ▶ Possible cyclic effects with the plural suffix [-s]



Discussion

- ▶ Empirical advantages:
 - ▶ Good fit with the empirical data
 - ▶ Explains incomplete neutralization
 - ▶ Baroni & Vanelli (2000) show that final voiceless obstruents are longer: consistent with moraicity?
 - ▶ Consistent with the behaviour of Italian borrowings
 - ▶ Explains the lack of productive lengthening in paroxytones
- ▶ Conceptual advantages:
 - ▶ No opacity: OT wins
 - ▶ Underlying weight introduced only where absolutely necessary: no apocope à la Repetti (1992) or now-you-see-it-now-you-don't non-surface weight à la Hualde (1990), surface phonology does the heavy lifting
 - ▶ Shows how feature geometry reproduces markedness effects à la de Lacy (2006) (i. e. preservation of the marked, markedness reduction) without recourse to stipulative markedness hierarchies

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Extension to Lombard

- ▶ A similar process of productive oxytone lengthening is found in Western Lombard
 - ▶ Milan (Sanga 1988; Prieto i Vives 2000, *inter alia*)
 - ▶ Casale Corte Cerro (Weber Wetzel 2002)
- ▶ Similar analysis of Milanese by Prieto i Vives (2000): lengthening is due to a bimoraic requirement, the extra mora is attached to the vowel due to HNuc (“if something has to be moraic, prefer a vowel to a consonant”)
- ▶ Should rely on underlying moraicity to prevent lengthening before voiceless consonants

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The importance of Lombard

- ▶ An important difference between Lombard and Friulian is the laryngeal phonology
- ▶ In Lombard, the devoiced obstruents are “variably” voiced:
- ▶ “In milanese, le consonanti finali mantengono la sonorità in maniera variabile...o restano sonore, o passano a sorde, o hanno una realizzazione intermedia” (Sanga 1988)
- ▶ Hard to tell without actual phonetic data, but this suggests a passive voicing pattern
- ▶ If true, this is further corroboration: precisely the sort of thing to be expected if phonological delaryngealization leads to phonetic underspecification (Keating 1988)
- ▶ Further advantage over the account of Prieto i Vives (2000), where the variation remains unexplained

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No passive voicing in Friulian: why?

- ▶ I suggest this is a matter of the interface
- ▶ Passive voicing in Milanese is an enhancement strategy utilizing the non-contrastive laryngeal dimension, specifically Glottal Tension (Avery & Idsardi 2001)
- ▶ Thus, in Milanese the ⟨Lar,[F]⟩ segment is realized with Glottal Width as the contrastive feature: for GW as voicelessness rather than aspiration, cf. Avery & Idsardi's (2001) interpretation of Japanese
- ▶ In Friulian, we can assume that GW is the primary realization of the contrast, so voicing is unavailable as an enhancement strategy
- ▶ This shows why we need to distinguish the more abstract substance-free phonology and the conventional, non-contrastive implementation aspects

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Conclusions

- ▶ Unified analysis of final devoicing and vowel lengthening in Friulian and Western Lombard
- ▶ Transparent analysis which explains the phonetic facts and does not rely excessively on lexical specification
- ▶ Advantages of substance-free phonology with feature geometry:
 - ▶ Markedness effects come for free
 - ▶ No need for very specific phonetic detail in the phonology

Granmarcè!



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